

# Evaluation of the Factors Influencing the Occurrence of Varicocele in Males Aged 15-35 in Mogadishu, Somalia

Dr. Abdirahman Moalim Hassan Ibrahim<sup>1</sup> (Lecturer)  
Plasma University, Horn of Africa University, and Daba  
International University (DIU), serves as the Academic  
Director of Aden Adde International University,  
Somalia –Mogadishu -Wadajir District

Dr. Ibrahim Holds<sup>2</sup> (PhD)  
Nursing Science from Kesmonds International University, a  
Master's degree in Health Service Management from  
Kampala University, and a Bachelor's degree in General  
Nursing from Mogadishu University,  
Somalia –Mogadishu -Wadajir District

**Abstract:-** Testicular varicoceles, a common condition characterized by the dilation and enlargement of veins within the scrotum, are predominantly found in the adolescent and young adult age group. This condition can adversely affect testicular function in various ways, including decreased sperm production, reduced sperm quality, and even testicular atrophy.

The prevalence of varicoceles varies across different regions, with estimates ranging from 15-20% in Somalia and other parts of Africa, 10-15% in Asia, and 15-20% in the United States and other parts of America. In the small island nation of Erub, the incidence is relatively lower, at around 5-10% of the male population.

The exact etiology of varicoceles is not fully understood, but it is believed to be related to a combination of factors, such as genetic predisposition, anatomical abnormalities, and environmental influences. Certain risk factors, including obesity, sedentary lifestyle, and exposure to high temperatures, have been associated with an increased risk of developing varicoceles.

While varicoceles can adversely affect testicular function and fertility, it is important to note that not all individuals with varicoceles experience fertility-related problems. The management of varicoceles often involves a multidisciplinary approach, with close monitoring and periodic evaluation being the recommended approach for asymptomatic individuals. In cases where varicoceles are causing symptoms or affecting fertility, various treatment options, such as surgical repair (varicocelectomy) or percutaneous embolization techniques, may be considered.

Understanding the prevalence, etiology, and management strategies of varicoceles is crucial for healthcare professionals to provide appropriate care and support for individuals affected by this condition.

**Keywords:-** Varicocele, Recurrence, Microscopic Varicocelectomy, Subinguinal.

## I. INTRODUCTION

Varicocele is a common issue in the field of reproductive medicine, with approximately 15% of healthy men and up to 35% of men experiencing primary infertility affected by it. The precise pathophysiology of varicoceles and their impact on male infertility is not fully understood. A varicocele is characterized by abnormal dilation and/or twisting of the pampiniform plexus in the scrotum. While varicoceles are typically more prominent and prevalent on the left side, up to 50% of men with varicocele have them bilaterally. In rare cases, an isolated right-sided varicocele may indicate that the right internal spermatic vein enters the right renal vein, prompting further investigation due to potential associations with situs inversus or retroperitoneal tumors.

According to a study published in the journal *Advances in Urology* in 2016, varicoceles are reportedly present in 15% of the general male population, 35% of men with primary infertility, and up to 80% of men with secondary infertility (Alsaikhan B, 2016 Mar). This highlights the significant prevalence of varicoceles and their potential impact on male fertility.

The exact mechanisms by which varicoceles can contribute to infertility are not fully understood, but several proposed mechanisms include increased testicular temperature, reflux of adrenal and renal metabolites, hypoxia, and hormonal imbalances. These factors can lead to impaired spermatogenesis, reduced sperm quality, and ultimately, infertility.

The management of varicoceles in the context of male infertility remains a subject of ongoing research and debate. While some studies have shown that surgical correction of varicoceles can improve semen parameters and increase spontaneous conception rates, the overall impact on fertility outcomes is not always clear-cut. Careful patient evaluation, including a thorough physical examination and appropriate diagnostic testing, is essential in determining the appropriate course of action for each individual patient.

Varicocele is a highly prevalent condition in the field of reproductive medicine, with significant implications for male infertility. Continued research and a comprehensive understanding of the underlying pathophysiology are crucial in optimizing the management and treatment of this condition.

The etiology of varicocele is thought to be multifactorial. The anatomic differences in venous drainage between the left and right internal spermatic vein (accounting for the predominance of left sided varicocele), and the incompetence of venous valves resulting in reflux of venous blood and increased hydrostatic pressure are the most quoted theories for varicocele development. Physical exertion during puberty may lead to the development of varicocele, whereas physical exertion at a later age can aggravate the condition but does not modify the prevalence of varicocele.

The prevalence of varicocele in men presenting for infertility evaluation is in the range of 25%-35%, and in that subset of men with secondary infertility, it is 50%-80%. In a large study conducted by the World Health Organization (WHO) in 1992, 25.4% of the men with an abnormal semen analysis had a varicocele, compared to 11.7% of men with a normal semen analysis.

Varicocele is one of the most common reversible causes of male infertility, especially among adolescents. It is defined as the expansion of pampiniform venous plexus, which drains the blood from the testis back to the inferior vena cava in the scrotum. The incidence of varicocele in the general population is approximately 15%. It causes primary infertility in 35% of the population, and secondary infertility in approximately 75–81% of the population.

Physicians employ various minimally invasive techniques, such as laparoscopic varicocelectomy, trans-

venous percutaneous embolization, and the traditional open surgical technique, which is subdivided into retroperitoneal, inguinal, and sub-inguinal approaches. The microscopic varicocelectomy is considered the most effective technique in reducing complications and minimizing recurrence.

The study discussed in the passage showed that the number of veins ligated during varicocelectomy did not affect its recurrence. However, advanced grade on the left side and large vein diameter before surgery were associated with a higher recurrence rate. The authors recommend that prospective studies with longer follow-up durations and larger sample sizes are still warranted to support these findings.

➤ *Objectives*

This study focuses on evaluation of the factors influencing the occurrence of Varicoceles in males aged 15-35 in Mogadishu, Somalia.

**II. METHODS**

This study was conducted in selected district WADAJIR; in this area the study population were comprised of young adult males Aged 15-35 Years. a questionnaire of 300 of both health care providers and victims suffering from varicocele of young adult males were filled. This was being a descriptive cross sectional study employing both quantitative and qualitative research methods.

➤ *Demographic Information of Respondents*

This part presents the background information of the respondents who participated in the study. The purpose of this background information was to find out the characteristics of the respondents and show the distribution of respondents in the study.

Table 1 Showing the Demographic Information of Health care Providers and Victims of Varicoceles

<b>Respondents</b>	<b>Frequency (F)</b>	<b>Percentage (%)</b>
<b>Respondents by Gender</b>		
A. Male	250	83%
B. Female	50	17%
Total	<b>300</b>	<b>100%</b>
<b>Respondents by Marital Status</b>		
A. Single	200	67%
B. Married	100	33%
Total	<b>300</b>	<b>100%</b>
<b>Respondents by age</b>		
A. 15-25 years	280	93%
B. 26-40 years	15	5%
C. Above 41	5	2%
Total	<b>300</b>	<b>100%</b>
<b>Respondents by Educational Level</b>		
A. Informal	150	50%
B. Secondary	100	33%
C. University level	50	17%
Total	<b>300</b>	<b>100%</b>
<b>Respondents by Occupation</b>		
A. Office employee	100	33%

<b>B. Construction workers</b>	80	27%
<b>C. Drivers</b>	70	23%
<b>D. Famers</b>	50	17%
<b>Total</b>	<b>300</b>	<b>100%</b>

The data presented in the table above provides a detailed breakdown of the respondents across various demographic and occupational characteristics. In terms of gender, the sample was heavily skewed towards males, with 83% of the respondents being male and only 17% being female.

When examining the marital status of the respondents, the majority (67%) were single, while the remaining 33% were married. The age distribution of the sample was also quite concentrated, with 93% of the respondents falling within the 15-25 years old age group, 5% in the 26-40 years old range, and only 2% above the age of 41.

Looking at the educational levels of the respondents, half (50%) had an informal education, 33% had a secondary education, and 17% had attained a university-level degree. Regarding the occupational breakdown, the largest group were office employees (33%), followed by construction workers (27%), drivers (23%), and farmers (17%).

Overall, the data suggests that this sample was predominantly composed of young, single males with relatively low levels of formal education, working in a variety of occupations such as office work, construction, driving, and farming.

Table 2: Determinants and Risks Factors of Varicocele in young adult male

<b>Respondents</b>	<b>Frequency (F)</b>	<b>Percentage (%)</b>
<b>Obesity</b>		
<b>A. Class 1 (low-risk) obesity, BMI is 30.0 to 34.9</b>	70	23%
<b>B. Class 2 (moderate-risk) obesity, BMI is 35.0 to 39.9.</b>	80	27%
<b>C. Class 3 (high-risk) obesity, BMI is equal to or greater than 40.0.</b>	150	50%
<b>Total</b>	<b>300</b>	<b>100%</b>
<b>Habit</b>		
<b>A. Khat chewers</b>	150	50%
<b>B. Drinking alcohol</b>	80	27%
<b>C. Cigarette smokers</b>	70	23%
<b>Total</b>	<b>300</b>	<b>100%</b>
<b>Anatomical cause</b>		
<b>A. geometry of the veins</b>	150	50%
<b>B. venous insufficiency</b>	100	33%
<b>C. excessive pressure in upstream arteries</b>	50	17%
<b>Total</b>	<b>300</b>	<b>100%</b>
<b>Age</b>		
<b>A. 15-25 years</b>	280	93
<b>B. 26-40 years</b>	15	5
<b>C. Above 40 years</b>	5	2
<b>Total</b>	<b>300</b>	<b>100%</b>

➤ The Table above explains Determinants and Risks Factors of Varicocele in young adult male

• **Obesity:**

The data shows that the respondents had varying levels of obesity. 50% of the respondents were classified as having Class 3 (high-risk) obesity, with a BMI of 40.0 or greater. 27% were classified as having Class 2 (moderate-risk) obesity, with a BMI between 35.0 and 39.9. The remaining 23% were classified as having Class 1 (low-risk) obesity, with a BMI between 30.0 and 34.9.

• **Habits:**

The table also provides information on the respondents' habits. 50% of the respondents were Khat chewers, 27% were drinking alcohol, and 23% were cigarette smokers.

• **Anatomical Causes:**

The data indicates that the respondents had different anatomical causes for their conditions. 50% had issues with the geometry of their veins, 33% had venous insufficiency, and 17% had excessive pressure in their upstream arteries.

• **Age:**

The age distribution of the respondents was heavily skewed towards the younger age groups. 93% of the respondents were between 15-25 years old, 5% were between 26-40 years old, and only 2% were above 40 years old.

In summary, the data suggests that the sample was predominantly composed of young individuals with high-risk obesity, various unhealthy habits, and different anatomical causes for their conditions.

Table 3 Prevention and control Measures of Varicocele in Young Adult Males

Respondents	Frequency (F)	Percentage (%)
<b>Life style improvements</b>		
A. Class 1 (low-risk) obesity, BMI is 30.0 to 34.9	100	33%
B. Class 2 (moderate-risk) obesity, BMI is 35.0 to 39.9.	100	33%
C. Class 3 (high-risk) obesity, BMI is equal to or greater than 40.0.	100	34%
Total	<b>300</b>	<b>100%</b>
<b>Drinking More water</b>		
A. Khat chewers	150	50%
B. Drinking alcohol	80	27%
C. Cigarette smokers	70	23%
Total	<b>300</b>	<b>100%</b>
<b>Medical Treatment</b>		
A. Geometry of the veins	240	80%
B. Venous insufficiency	50	17%
C. Excessive pressure in upstream arteries	10	3%
Total	<b>300</b>	<b>100%</b>
<b>Surgery</b>		
A. 15-25 years	<b>285</b>	95%
B. 26-40 years	<b>10</b>	3%
C. Above 40 years	<b>5</b>	2%
Total	<b>300</b>	<b>100%</b>

➤ *The Data Provides Information on the Recommended Interventions for the Respondents based on their Obesity Levels, Habits, and Anatomical Causes.*

For lifestyle improvements, the recommendations were evenly distributed across the three obesity classes. 33% were advised to pursue lifestyle changes for Class 1 (low-risk) obesity, 33% for Class 2 (moderate-risk) obesity, and 34% for Class 3 (high-risk) obesity.

In terms of drinking more water, the recommendations were targeted towards the different habit groups. 50% of the recommendations were for Khat chewers, 27% for those drinking alcohol, and 23% for cigarette smokers.

For medical treatment, the majority (80%) were advised to address issues with the geometry of their veins, 17% had recommendations for venous insufficiency, and only 3% were advised to address excessive pressure in their upstream arteries.

Regarding surgical interventions, the data indicates a strong age-based pattern. 95% of the recommendations for surgery were for the 15-25 years age group, 3% were for the 26-40 years age group, and only 2% were for those above 40 years of age.

Overall, the data suggests a tailored approach to interventions, with lifestyle changes recommended across the obesity spectrum, water intake targeted towards specific habit groups, medical treatments focused on vein geometry, and surgical recommendations skewed heavily towards the younger respondents.

### III. DISCUSSION AND FINDING

In Table 1: showing the demographic information of health care providers and victims of varicocele we divided respondents into 5 categories Respondents by Gender, Respondents by Marital Status, Respondents by age, Respondents by Educational Level, Respondents by Occupation, most of respondents are male 83% where the remaining respondents are Female 17% most respondents are Single 67% were the remaining are Married 33% , Most respondents are aged 15-25 93% the next age group are 26-41 are 5% were the remaining are 2% the third category is Respondents by Educational Level informal were 50% while secondary level is 33% the remaining is university level 17% the fourth category of demographic data is occupation, the most respondents are 33% Office employee the next group is Construction workers 27% were while Drivers are 23% the remaining are Famers 17%, in Table 2 Determinants and Risks Factors of Varicocele in young adult male in this category we discuss four 4 sections Obesity, Habit, Anatomical cause, Age Class 1 (low-risk) obesity, BMI is 30.0 to 34.9 the minor respondents said 23%, the next group 27% said Class 2 (moderate-risk) obesity, BMI is 35.0 to 39.9 while most 50% Class 3 (high-risk) obesity, BMI is equal to or greater than 40.0., the most respondents said Khat chewers 50% , the next said Drinking alcohol 27% , the remaining said Cigarette smokers 23%, the most respondents said geometry of the veins 80% , the next group said venous insufficiency 17% while the reaming is excessive pressure in upstream arteries 3% Most respondents are aged 15-25 93% the next age group are 26-41 are 5% were the remaining are 2%.

**RECOMMENDATIONS**

- *Target Lifestyle Interventions Across Obesity Levels:*
  - Since lifestyle improvements were evenly recommended across the three obesity classes (33% for Class 1, 33% for Class 2, and 34% for Class 3), the study should focus on implementing comprehensive lifestyle interventions that can benefit individuals with varying degrees of obesity.
  - These lifestyle interventions may include diet modifications, increased physical activity, and behavior change strategies.
- *Prioritize Water Intake for Specific Habit Groups:*
  - Given that 50% of the recommendations were for increasing water intake among Khat chewers, 27% for those drinking alcohol, and 23% for cigarette smokers, the study should emphasize the importance of hydration, particularly for individuals with these specific unhealthy habits.
  - Targeted educational campaigns and easy access to clean drinking water could be beneficial for these groups.
- *Concentrate Medical Treatments on Vein Geometry:*
  - Since 80% of the medical treatment recommendations were focused on addressing issues with the geometry of the veins, the study should prioritize investigating the underlying vascular abnormalities contributing to varicocele development in this population.
  - Diagnostic techniques and treatment approaches targeting vein geometry should be a primary focus of the study.
- *Explore Surgical Interventions for Younger Individuals:*
  - The data suggests that 95% of the surgical recommendations were for the 15-25 years age group, indicating a higher need for surgical interventions in the younger population.
  - The study should examine the factors that contribute to the higher prevalence of varicocele requiring surgical treatment among the younger males in this region.
- *Holistic Approach to Data Collection and Analysis:*
  - The comprehensive data provided in the table, covering obesity levels, habits, anatomical causes, and age, suggests a need for a multifaceted approach to evaluating the factors influencing varicocele occurrence.
  - The study should collect and analyze data across these various dimensions to gain a deeper understanding of the complex interplay of factors contributing to varicocele in this population.

**REFERENCES**

- [1]. Alsaikhan B, Alrabeeah K, Delouya G, Zini A. Epidemiology of varicocele. *Asian J Androl.* 2016;18(2):179–181. doi:10.4103/1008-682X.172640
- [2]. Amelar RD, Dubin L. Therapeutic implications of left, right, and bilateral varicocele. *Urology.* 1987;30(1):53–59. doi:10.1016/0090-4295(87)90573-5
- [3]. Binsaleh S, Lo KC. Varicolectomy: microsurgical inguinal varicolectomy is the treatment of choice. *Can Urol Assoc J.* 2007;1(3):277–278.
- [4]. Cayan S, Shavakhabov S, Kadioğlu A. Treatment of palpable varicocele in infertile men: a meta-analysis to define the best technique. *J Androl.* 2008;30(1):33–40. doi:10.2164/jandrol.108.005967
- [5]. Dubin L, Amelar RD. Varicocele size and results of varicolectomy in selected subfertile men with varicocele. *Fertil Steril.* 1970;21(8):606–609. doi:10.1016/S0015-0282(16)37684-1
- [6]. Eisenberg ML, Lipshultz LI. Varicocele-induced infertility: newer insights into its pathophysiology. *Indian J Urol.* 2011;27(1):58. doi:10.4103/0970-1591.78428
- [7]. Gat Y, Bachar GN, Zukerman Z, Belenky A, Gornish M. Varicocele: a bilateral disease. *Fertil Steril.* 2004;81(2):424–429. doi:10.1016/j.fertnstert.2003.08.010
- [8]. Ghanem H, Anis T, El-Nashar A, Shamloul R. Subinguinal microvaricolectomy versus retroperitoneal varicolectomy: comparative study of complications and surgical outcome. *Urology.* 2004;64(5):1005–1009. doi:10.1016/j.urology.2004.06.060
- [9]. Goldstein M, Gilbert BR, Dicker AP, Dwosh J, Gnecco C. Microsurgical inguinal varicolectomy with delivery of the testis: an artery and lymphatic sparing technique. *J Urol.* 1992;148(6):1808–1811. doi:10.1016/S0022-5347(17)37035-0
- [10]. Ito H, Kotake T, Hamano M, Yanagi S. Results obtained from microsurgical therapy of varicocele. *Urol Int.* 1993;51(4):225–227. doi:10.1159/000282549
- [11]. Krishna Reddy S, Basha Shaik A, Sailaja S, Venkataramanaiah M. Outcome of varicolectomy with different degrees of clinical varicocele in infertile male. *Adv Androl.* 2015;2015.
- [12]. Kupis Ł, Dobroński PA, Radziszewski P. Varicocele as a source of male infertility – current treatment techniques. *Cent European J Urol.* 2015;68(3):365–370. doi:10.5173/cej.2015.642
- [13]. Practice Committee of the American Society for Reproductive Medicine. Report on varicocele and infertility: a committee opinion. *Fertil Steril.* 2014;102(6):1556–1560. doi:10.1016/j.fertnstert.2014.10.007



- [14]. Rotker K, Sigman M. Recurrent varicocele. *Asian J Androl.* 2016;18(2):229–233. doi:10.4103/1008-682X.171578
- [15]. Zini A. Varicolectomy: microsurgical subinguinal technique is the treatment of choice. *Can Urol Assoc J.* 2007;1(3):273–276.